

WHAT IS CLAIMED IS:

1. An emulsified fuel comprising a hydrocarbon liquid phase, an aqueous phase and at least one emulsifying agent and exhibiting a water/hydrocarbons ratio by weight ranging from 5/95 to 35/65, characterized in that the hydrocarbon phase comprises from 5 to 35% by weight of C₈ to C₂₂ normal paraffins, the aqueous phase being dispersed in the hydrocarbon phase.
2. The fuel as claimed in claim 1, characterized in that the hydrocarbon phase comprises from 5 to 35% by weight of C₁₃ to C₁₉ normal paraffins.
3. The fuel as claimed in claim 1 or claim 2, characterized in that the hydrocarbon phase comprises from 8 to 20% by weight of said C₈ to C₂₂, preferably C₁₃ to C₁₉, normal paraffins.
4. The fuel as claimed in any one of claims 1 to 3, characterized in that the hydrocarbon phase comprises from 10 to 20% by weight of said C₈ to C₂₂, preferably C₁₃ to C₁₉, normal paraffins.
5. The fuel as claimed in any one of claims 1 to 4, characterized in that the hydrocarbon phase comprises at least one petroleum fraction of gasoline, diesel fuel or kerosene type.
6. The fuel as claimed in any one of claims 1 to 4, characterized in that the hydrocarbon phase comprises a mixture composed of one or more hydrocarbon fractions and of at least one fraction rich in said normal paraffins, that is to say comprising at least 50% by weight of said normal paraffins.
7. The fuel as claimed in claim 6, characterized in that said fraction rich in normal paraffins is a fraction

of petroleum origin.

8. The fuel as claimed in claim 6 or claim 7, characterized in that said fraction rich in normal paraffins comprises synthetic paraffins obtained by oligomerization of olefins comprising from 2 to 5 carbon atoms or by the Fischer-Tropsch synthesis starting from light hydrocarbons.

9. The fuel as claimed in any one of claims 6 to 8, characterized in that the said fraction rich in normal paraffins comprises at least one hydrotreated animal or vegetable oil and/or fat.

10. The fuel as claimed in claim 9, characterized in that the oil and/or the fat is chosen from:

- vegetable oils;
- animal fats;
- waste food oils or fats;
- and the mixtures of the above products.

11. The fuel as claimed in any one of claims 6 to 10, characterized in that the hydrocarbon fraction, with which the fraction rich in normal paraffins is mixed in order to obtain said hydrocarbon phase, is chosen from gasoline fractions, middle distillates, preferably chosen from kerosene fractions and diesel fuel fractions, biofuels, preferably chosen from esterified or nonesterified vegetable oils, and the mixtures of such fractions.

12. The fuel as claimed in any one of claims 6 to 11, characterized in that the hydrocarbon fraction, with which the fraction rich in normal paraffins is mixed in order to obtain said hydrocarbon phase, comprises at least one fraction chosen from intermediate vacuum distillates, heavy vacuum distillates or bottom cuts.

13. The fuel as claimed in any one of claims 1 to 12, characterized in that its content of emulsifying agent is between 0.5 and 5% by weight.

5 14. The fuel as claimed in any one of claims 1 to 13, characterized in that the emulsifying agent comprises at least one nonionic organic emulsifying agent, preferably of natural origin, preferably chosen from fatty acids and their derivatives, polyol esters or functionalized
10 polymers.

15 15. The fuel as claimed in any one of claims 1 to 14, characterized in that it comprises a bactericide and/or a fungicide.

16 16. The fuel as claimed in any one of claims 1 to 15, characterized in that it comprises at least one antifreeze chosen from alcohols, glycols, derivatives of glycols or of alcohols, or saline solutions.

20 17. The fuel as claimed in any one of claims 1 to 16, characterized in that it comprises at least one soot remover preferably chosen from catalysts based on magnesium, calcium, barium, cerium, copper, iron or their
25 mixtures.

18. The fuel as claimed in any one of claims 1 to 17, characterized in that it comprises at least one cetane number improver preferably chosen from alkyl nitrates or
30 organic peroxides.

19. The fuel as claimed in claim 18, characterized in that the ratio of the content by weight of C_8 to C_{22} normal paraffins in the hydrocarbon phase to the content
35 by weight of cetane number improvers in the engine fuel is between 5/0.5 to 15/0.05, preferably between 5/0.3 and 15/0.1.

20. The fuel as claimed in any one of claims 6 to 18, characterized in that its sulfur content, determined according to the standard NF M 07-100, is less than or equal to 350 ppm and preferably less than or equal to 50 ppm.

21. The fuel as claimed in any one of claims 6 to 20, characterized in that its content of polycyclic aromatic hydrocarbons, determined according to the standard IP 391, is preferably less than or equal to 11% by weight, more preferably less than or equal to 6% by weight.

22. A process for the preparation of an emulsified fuel as claimed in any one of claims 1 to 21, characterized in that it comprises at least the following stages:

(a) selecting at least one petroleum fraction of gasoline, diesel fuel or kerosene type comprising from 5 to 35% by weight, preferably from 8 to 20% by weight, more preferably still from 10 to 20% by weight of C₈ to C₂₂, preferably C₁₃ to C₁₉, normal paraffins; or

(a') mixing one or more hydrocarbon fractions and at least one fraction comprising at least 50% by weight of C₈ to C₂₂, preferably C₁₃ to C₁₉, normal paraffins, so as to obtain a hydrocarbon phase comprising from 5 to 35% by weight, preferably from 8 to 20% by weight, more preferably still from 10 to 20% by weight of C₈ to C₂₂, preferably C₁₃ to C₁₉, normal paraffins; then

(b) emulsifying, in the presence of at least one emulsifying agent, the hydrocarbon phase obtained in (a) or (a') with an aqueous phase according to a water/hydrocarbons ratio by weight ranging from 5/95 to 35/65.

23. The process as claimed in claim 22, characterized in that stage (b) is carried out by mixing the emulsifying agent with the hydrocarbon phase and then passing the resulting mixture one or more times into an

emulsifier system fed with the water necessary for the formation of the emulsion.

5 24. The process as claimed in claim 22, characterized in that stage (b) is carried out by:

 (b1) premixing the water and the emulsifying agent, followed by dispersion in the hydrocarbon phase, or simultaneous mixing of the hydrocarbon phase with the water and the emulsifying agent, then

10 (b2) emulsifying proper using an appropriate device.

 25. The use of the emulsified fuel as claimed in any one of claims 1 to 21 as engine fuel, in particular as
15 engine fuel for a diesel engine.

 26. The use of the emulsified fuel as claimed in any one of claims 1 to 21 as fuel for thermal machines preferably chosen from industrial or domestic boilers, furnaces, turbines and generators..
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 27. The use of the emulsified fuel as claimed in any one of claims 1 to 21 as Furnace Fuel Oil.

25 28. A method for reducing emissions from heat engines or thermal machines, comprising the use of an emulsified fuel as claimed in any one of claims 1 to 21.